

REMARKS

I. FORMAL DRAWINGS

The Office Action does not indicate whether the formal drawings filed on March 24, 2003 have been approved, as requested in the amendment filed on June 23, 2003. Applicant respectfully requests the Examiner to do so.

II. CLAIM TO PRIORITY

The Office Actions dated April 22, 2002 and September 19, 2002 acknowledged the claim to priority and indicated that the certified copies of the priority documents filed on September 22, 2000 have been received.

III. BRIEF DESCRIPTION OF INVENTION

The present invention is an image display apparatus for displaying moving images. The present invention is directed to improving the quality of the moving image. The present invention uses a shield member to shut off the image between frames, thereby minimizing contrast reduction. As shown in Fig. 1, the shield member can be an endless belt 5 comprising light transmitting portions 3 and light intercepting portions 4. The shield member also can be a reflection tube 15, as shown in Fig. 6, and a liquid crystal optical shutter 16, as shown in Fig. 7.

IV. PRIOR ART REJECTIONS

A. Claim 1

Claim 1 is rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 5,825,347 (Prinsen). This rejection is traversed.

This rejection is substantially similar to the rejection presented in the previous office action dated March 10, 2003. The section of Prinsen relied on by the Examiner (column 5, lines 28-35) discloses a conventional screen saver. In the amendment filed on June 23, 2003, Applicant submitted that this screen saver program of Prinsen does not include a shield member comprising a light transmitting portion and a light intercepting portion, and a drive mechanism that drives the shield member "in synchronization with display of the image by the image display device" so as to switch between the light transmitting portion and the light intercepting portion of the shield member, as recited by claim 1.

In response to these arguments, the Examiner asserts that the screen saver taught by Prinsen shuts off and turns on an image displayed by the image display device. Applicant submits that the light intercepting portion of the present invention functions to block light, for example from the back-light 2 to the liquid crystal panel 1 as shown in Fig. 1. In the screen saver taught by Prinsen, there is no light intercepting portion that blocks light in synchronization with the display of an image. Instead, the screen saver simply changes the image that is displayed on the screen from normal image to the screen saver image. Specifically, column 5, lines 32-34 teaches that "[w]hen this time [predetermined length of time in which no input by the user is detected] has elapsed, the electronic image shown in Fig. 5 replaces the pre-existing image on the display screen." There is no blocking of light. Rather, an image is always shown on the display screen 50.

Therefore, Applicant submits that Prinsen does not teach each and every feature of claim 1. Thus, the rejection of claim 1 under 35 U.S.C. § 102(a) is improper.

B. Claims 1 and 5

Claims 1 and 5 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,023,255 (Bell). This rejection is traversed.

This rejection is substantially similar to the rejection presented in the previous office action dated March 10, 2003. Regarding claim 1, relying on Fig.

4 of Bell, the Examiner asserts that Bell teaches a display image, which generates the moving image 4 using a traveling-message display 7 comprising an array of light-emitting diodes.

In the amendment filed on June 23, 2003, Applicant argued that Bell discloses an imaging device comprising a mask 2 including an image 1 that is overlaid a moving image 4. The image that is perceived by an observer will be either the moving image 4 or the image of the mask 2 based upon the tracking motion of the observer's eyes. For example, an observer whose eyes track the motion of the moving image 4, will perceive the moving image "TIME 21:34". An observer whose eyes remain fixed on the mask 2, will perceive the image of the mask "TOURNEAU" (see column 3, lines 20-36). Fig. 4 of Bell discloses a similar device, but includes a traveling message display 7 for the moving image. In the amendment filed on June 23, 2003, Applicant argued that Bell does not teach or suggest a shield member comprising a light transmitting portion and a light intercepting portion, and a drive mechanism that drives the shield member in synchronization with display of the image by the image display device so as to switch between the light transmitting portion and the light intercepting portion of the shield member, as recited by claim 1, on which claim 5 depends. In the amendment filed on June 23, 2003, Applicant argued that this provides an image display apparatus which is capable of attaining substantial impulse-type drive in an image display device that is driven by a hold-type drive, and which exhibits proper moving-image performance without causing image contrast reduction. Applicant submits that the display device of Bell cannot attain these effects.

In the amendment filed on June 23, 2003, Applicant also argued that Bell does not teach or suggest "an image display device driven in a continuous light-emitting mode," as recited by claim 1. Rather, the display shown in Fig. 4 includes little, white, square light sources 1 (Fig. 1), and an array of light-emitting diodes 19 (Fig. 4). Further, Applicant argued that the device of Bell does not include a "drive mechanism for driving the shield member in synchronization with display of the image display device," as recited by claim 1. The mask 2/8 of Bell is not driven at all. Rather, the mask 2/8 is overlaid the

moving image 4/7/9 (see Figs. 1, 4 and 5; column 2, line 66 – column 3, line 4; and column 4, lines 3-5). As shown in Figs. 3a – 3f, the position of the mask 2 remains constant as the moving image 4 moves behind it (see column 3, lines 15-25).

In response to these arguments, the Examiner asserts that the mask 2 of Bell has some light transmitting and light intercepting portions, the light source can be switched between bright and dim, and that the image becomes visible to an observer as the stepping rate of the moving image 4 increases.

It appears that the Examiner did not consider all of our arguments. Specifically, the Examiner did not consider our argument that Bell does not teach a drive mechanism that drives the shield member in synchronization with display of the image by the image display device so as to switch between the light transmitting portion and the light intercepting portion of the shield member, as recited by claim 1, on which claim 5 depends. The Examiner asserts that the driving of the belt "should be in synchronism with the mask 2 and the moving image 4." However, in the device taught by Bell, the mask 2/8 is not driven at all. Rather, the mask 2/8 is overlaid the moving image 4/7/9 (see Figs. 1, 4 and 5; column 2, line 66 – column 3, line 4; and column 4, lines 3-5). There certainly is no continuous light emitting mode image, with which the mask 2/8 is driven in synchronization to switch between light transmitting portions and light intercepting portions. Rather, the display of Bell is merely small, white, square light sources, which are not "an image display device driven in a continuous light-emitting mode," as recited by claim 1.

Claim 5 depends on claim 1. The Examiner asserts that the movable mask 9 is the same as the claimed endless belt shield member. Applicant submits that the movable mask 9 of Bell is not driven in synchronization with display of an image by an image display device, as recited by claim 1, on which claim 5 depends. The mask 9 is driven over a source of uniform illumination 12. Bell teaches that the uniform illumination may be natural outdoor light, a fluorescent lamp, or any other steady light source (see column 4, lines 16-27). Since the light source is uniform a, the mask 9 cannot be driven in synchronization with a display of an image, as recited by claim 1.

Therefore, since Bell fails to teach or suggest all of the elements of claims 1 and 5, Bell does not anticipate these claims. Thus, Applicant submits that the rejection of claims 1 and 5 under 35 U.S.C. § 102(e) is improper.

C. Claims 2-4 and 7-12

Claims 2-4 and 7-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Prinsen. This rejection is traversed.

This rejection is substantially similar to the rejection of claims 2-4 and 7-12 presented in the office action dated March 10, 2003. Regarding claims 2-4, the Examiner asserts that it would have been obvious to apply a transmission type or a reflection type LCD to the device of Prinsen.

As presented above, Prinsen discloses a conventional screen saver program. Applicant submits that this screen saver program of Prinsen does not include a drive mechanism that drives a shield member "in synchronization with display of the image by the image display device," as recited by claim 1, on which claims 2-4 and 7-12 depend. As presented above with respect to claim 1, the operation of the screen saver of Prinsen is not "in synchronization with display of the image by the image display device," as recited by claim 1. Rather, this shutting off of the image is based upon the amount of time in which no input by the user is detected, as asserted by the Examiner. In fact, the triggering of the screen save is completely independent of the display of the image.

Also, Applicant submits that Prinsen does not mechanically intercept light, as recited by claims 2, 3, and 4. Regarding claim 7, Applicant submits that Prinsen does not teach or suggest to drive a shield member "in synchronization with a vertical sync signal to carry out the shutting off of the image," as recited by claim 7. Rather, the screen saver of Prinsen completely replaces the image displayed before the triggering of the screen saver. Further, regarding claim 9, Applicant submits that the screen saver of Prinsen does not shut off an image in an interval between frames, as recited by claim 9. The present invention is not a screen saver. Rather, it is a device that can improve

the quality of the image displayed by a display screen by minimizing contrast reduction. The Examiner failed to respond to these arguments, which were presented in the amendment filed on June 23, 2003.

Further, regarding claim 8, on which claims 9-12 depend, Applicant submits that Prinsen does not teach or suggest a shield member comprising a liquid crystal optical shutter, as recited by claim 8. Because Prinsen does not teach or suggest a liquid crystal optical shutter, there is no teaching or suggestion to intercept light applied to and from an image display device, as recited by claims 10 and 11, respectively. Again, the Examiner failed to respond to these arguments, which were presented in the amendment filed on June 23, 2003.

Therefore, since Prinsen does not teach each and every feature of claims 2-4 and 7-12, Applicant submits that the rejection of claims 2-4 under 35 U.S.C. § 103(a) is improper.

D. Claims 6 and 13

Claims 6 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Prinsen in view of U.S. Patent No. 5,828,427 (Faris). This rejection is traversed.

The Examiner asserts that Prinsen teaches all of the limitations of claim 6 except a liquid crystal device that is a projection device for magnifying and projecting light. Claim 6 depends on claim 1. This rejection is substantially similar to the rejection of claims 2-4 and 7-12 presented in the office action dated March 10, 2003.

As presented above, Prinsen does not teach or suggest a drive mechanism that drives a shield member "in synchronization with display of the image by the image display device," as recited by claim 1. In the rejection of claim 1, the Examiner asserts that the screen saver shuts off the displayed image after "a predetermined length of time in which no input by the user is detected." Applicant submits that this is not "in synchronization with display of the image by the image display device." Rather, this shutting off of the image is

based upon the amount of time in which no input by the user is detected, as asserted by the Examiner. In fact, the triggering of the screen save is completely independent of the display of the image.

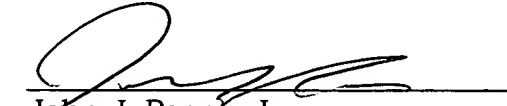
Applicant submits that Faris fails to make up for the above-noted deficiencies of Prinsen because Faris teaches that the rear panel 21 is an optically opaque panel (see column 2, lines 50-55). That is, Faris fails to teach or suggest a drive mechanism that drives a shield member "in synchronization with display of the image by the image display device," as recited by claim 1, on which claim 6 depends. The Examiner does not assert that Faris teaches this feature of claim 1. Rather, the Examiner relies on Faris for the teaching of a flat panel display panel having direct and projection viewing modes of operation, and an electro-optical backlighting panel having a light emission state and a light transmission state.

Claim 13 depends on claim 9. As presented above, the screen saver of Prinsen does not shut off an image in an interval between frames, as recited by claim 9. Faris fails to make up for this deficiency of Prinsen. Therefore, since the combination of Prinsen and Faris fails to form the invention defined by claim 13, Applicant submits that the rejection of claim 13 under 35 U.S.C. § 103(a) is improper.

Applicant believes that no additional fees are due for the subject application. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. 04-1105.

Respectfully Submitted,

Date: Apr. 24, 2003
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